TRIASSIC PARK:

first year results of the ongoing paleontological inventory of PETRIFIED FOREST NATIONAL PARK

By William G. Parker

Petrified Forest National Park was established to protect natural and cultural resources in northeastern Arizona, including fossil trees and other plants and animals of the Late Triassic Period (about 210 to 235 million years ago). This year marks the 150th anniversary of the beginning of paleontological research, though the majority has been done in the last 80 years, resulting in a large amount of published scientific data (e.g., Camp 1930, Daugherty 1941, Ash 1972, Long and Murry 1985). As of 2003, investigators have documented more than 400 fossil sites within the park, including more than 250 vertebrate sites (fig. 1). In 2001, resource managers initiated a project funded with monies from the Recreational Fee Demonstration Program to locate and document all known paleontological localities beginning with vertebrate sites.

First, resource managers clearly defined what constitutes a "site" in order to locate these localities. A site is a geographic location where fossil resources are noted or collected, documented by curators, and deposited into a museum collection. Many of these sites are listed in scientific literature or in unpublished reports (Evanoff 1994, Long and Murry 1995, Parker 2002). Investigators from the Museum of Northern Arizona conducted the last general inventory of park fossil resources in 1979 (Cifelli et al. 1979). Unfortunately, during this study they only roughly mapped and described the localities and took very few photos of the sites. During the new inventory, investigators document these historical sites in three ways: (1) plotting with geographic information systems (GPS), (2) documenting the physical description, and (3) photographing the site. Investigators are not placing any physical markings now, in order to avoid confusion with numerous marked cultural sites in the park.

Preliminary work in the summer of 2001 resulted in the documentation of 35 preexisting and 10 new vertebrate sites, which far surpassed initial goals and expectations for the project. Work was even more productive in 2002 with investigators documenting 34 preexisting and 22 new sites. To date, investigators have located and documented more than 40% of all known vertebrate fossil sites in the park using the new criteria. In addition, investigators recovered numerous vertebrate fossils, which are now protected from loss by erosion (fig. 2). All of these specimens are scientifically important; however, the skeleton of a large, extinct, crocodile-like aetosaur *(Stagonolepis wellesi)*, the second most complete aetosaur skeleton recovered from the Triassic of Arizona, is most notable. This inventory is ongoing and future phases will include documentation of localities with plant, invertebrate, and trace fossils.

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Figure 1. The inventory crew investigates a fossilized tree in the Devil's Playground area of the park.

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Figure 2. In 2002 the inventory teams discovered an armor plate of a Triassic reptile in the Rainbow Forest. This plate belongs to a new species of animal previously unknown in Arizona.

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